Space Weather Forecast

Issued on Tuesday, 30 April 2024 at 12:19 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: A chance of further Moderate-class flares and slight chance of Strong flares through the period.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity continues at Moderate levels with a Moderate-class flare peaking at 30/0114 UTC, originating from the large and complex sunspot region in the west of the disc. This region continues to dominate the flare risk, showing further evolution in its intermediate and trailing portions in recent imagery, also with an apparent increase in magnetic flux. Remaining sunspot regions are all relatively small and simple.
Whilst there are thought to have been no Earth directed Coronal Mass Ejections (CMEs) in the last 24 hours, modelling is still ongoing of a CME which emerged to the northwest on 29 April, which may have erupted from near centre disc.
Solar Wind / Geomagnetic Activity: Solar winds have been on a declining trend as the recent fast wind eases, with a weak CME arrival at 30/1135 UTC. Wind speeds have eased from around 470 km/s to near 380km/s, jumping to 420 km/s after the CME arrived. The Interplanetary Magnetic Field was weak. The north-south component also varied weakly. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).
Energetic Particles / Solar Radiation: Solar radiation was at background levels.

Four-Day Space Weather Forecast Summary
Solar Activity: There is a chance of Moderate-class flares and a slight chance of Strong flares though the period, starting to decline later on Day 4 (03 May), this mainly from the large and complex group in the west of the disc.
Solar Wind / Geomagnetic Activity: There is currently one weak CME featuring in the forecast, which appears to have just arrived at Earth. Solar winds were at background levels after the recent weak coronal hole fast wind. During Day 2 (01 May) another coronal hole is likely to bring elevated wind speeds briefly. This is followed by a further coronal hole, which could bring another increase in wind speeds back to elevated levels later on Day 4 (03 May), or perhaps after the end of this period.
Geomagnetic activity is expected to be largely Quiet to Unsettled, but with a slight chance of Active to G1/Minor Storm intervals due to CME or fast wind influence through much of this period.
Energetic Particles / Solar Radiation: Solar radiation is most likely to remain at background levels through this period. There is a slight chance for an S1 or greater event, with the large, complex sunspot in the western quadrant posing the main risk as it continues to rotate westwards.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	15	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	50	50
Very Active	R3 to R5 X	No	15	15	15	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	15	15	15
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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